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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,176	08/27/2003	Hidekazu Arase	S077-000183	4782
27572	7590	06/29/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			SHOSHO, CALLIE E	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/649,176

Applicant(s)

ARASE ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/27/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1 and 8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/314,004. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Copending 10/341,004 discloses ink composition for ink jet recording comprising colorant, humectant, penetrant, water, and water-soluble substance that undergoes condensation polymerization in the absence of water wherein the water soluble substance includes a fluoroalkyl group and the penetrant accelerates the condensation polymerization of the water-soluble substance.

The differences between copending 10/341,004 and the present claimed invention are (a) present claims require that the water-soluble substance has hydrophobic group while the copending claims disclose that the water-soluble substance has a fluoroalkyl group and (b) copending claims disclose that the penetrant accelerates the condensation polymerization of the water-soluble substance while the present claims are silent with respect to this function of the penetrant.

With respect to difference (a), it would have been within the skill level of one of ordinary skill in the art to recognize that the disclosure of fluoroalkyl group in the copending claims falls within the broad disclosure of hydrophobic group in the present claims. That is, fluoroalkyl group is a specific type of hydrophobic group.

In light of the above, it would have been obvious to one of ordinary skill in the art that fluoroalkyl group falls within the scope of the presently claimed hydrophobic group, and thus one of ordinary skill in the art would arrive at the present invention from the copending one.

With respect to difference (b), although there is no disclosure in the present claims that the penetrant accelerates the condensation polymerization of the water-soluble substance, given the broad disclosure in the present claims of penetrant, it is clear that this disclosure encompasses

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all types of penetrates including those that accelerate condensation polymerization of the water-soluble substance.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art that the specific penetrant disclosed in the copending claims is but one type of penetrant presently claimed, and thus, one of ordinary skill in the art would arrive at the present invention from the copending one.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 10-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6-7 of copending Application No. 10/341,004. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Copending 10/341,004 discloses (i) ink cartridge comprising an ink composition for ink jet recording, the ink including colorant, humectant, penetrant, water, and water-soluble substance that undergoes condensation polymerization in the absence of water wherein the water soluble substance includes a fluoroalkyl group and (ii) recording apparatus comprising ink composition for ink jet recording for performing a recording operation by discharging the ink onto a recording medium, the ink including colorant, humectant, penetrant, water, and water-soluble substance that undergoes condensation polymerization in the absence of water wherein the water soluble substance includes a fluoroalkyl group.

The difference between copending 10/341,004 and the present claimed invention is that the present claims require that the water-soluble substance has hydrophobic group while the copending claims disclose that the water-soluble substance has a fluoroalkyl group.

However, it would have been within the skill level of one of ordinary skill in the art to recognize that the disclosure of fluoroalkyl group in the copending claims falls within the broad disclosure of hydrophobic group in the present claims. That is, fluoroalkyl group is a specific type of hydrophobic group.

In light of the above, it would have been obvious to one of ordinary skill in the art that fluoroalkyl group falls within the scope of the presently claimed hydrophobic group, and thus one of skill in the art would arrive at the present invention from the copending one.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "41" has been used to designate both recording medium (see page 2, lines 21-22 or 24) and recording paper (see page 6, line 13). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are

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not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 discloses that “the amount of the silicon compound having a hydrophobic group is equal to or higher than 3 mol% and equal to or lower than 17 mol% when calculated on the basis of a silicon atom as a reference”. The scope of the claim is confusing because it is not clear what is meant by the calculation of the amount is made on the “basis of a silicon atom as a reference”. It is not clear what silicon atom this refers to or how the calculation is performed. Clarification is requested.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3-7, 10, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumura et al. (U.S. 6,419,732).

Matsumura et al. disclose ink jet ink comprising water, humectant, pigment, and hydrolyzable silane that includes both halogenated alkyl group and amino alkyl group. The alkyl group has 1-8 carbon atoms. There is also disclosed ink jet printer comprising the ink wherein the ink is discharged from the printer onto substrate. Although there is no explicit disclosure of ink cartridge comprising the above ink, it is clear that the ink jet printer inherently possesses cartridge to store ink (col.1, lines 3-5, col.2, lines 25-49 and 65-66, col.3, lines 9-25 and 43, col.4, lines 36-38, col.5, lines 58-59, col.5, line 65-col.6, line 6, and col.7, lines 63-65). It is noted that the disclosure of halogenated alkyl group clearly encompasses fluoroalkyl group as presently claimed and that fluoroalkyl group is "at once envisaged" from the disclosure of halogenated alkyl group.

Although there is no disclosure that the hydrolyzable silane undergoes condensation polymerization in the absence of water, given that Matsumura et al. disclose hydrolyzable silane comprising both fluoroalkyl group and aminoalkyl group as presently claimed, it is clear that the hydrolyzable silane would inherently undergo condensation polymerization in the absence of water.

In light of the above, it is clear that Matsumura et al. anticipate the present claims.

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Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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11. Claims 8, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (U.S. 6,419,732) in view of Blease et al. (U.S. 6,585,362).

The disclosure with respect to Matsumura et al. in paragraph 8 above is incorporated here by reference.

The difference between Matsumura et al. and the present claimed invention is the requirement in the claims of penetrant.

Blease et al., which is drawn to ink jet ink, disclose the use of penetrant in order to help the ink penetrate into the substrate (col.6, lines 37-42).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use penetrant in the ink jet ink of Matsumura et al. in order to produce ink with good penetration into substrate and thus, quicker drying and less smudging, and thereby arrive at the claimed invention.

12. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blease et al. (U.S. 6,585,362) in view of EP 738771.

Blease et al. disclose ink jet ink comprising water, colorant, humectant, and penetrant. There is also disclosed cartridge comprising the ink as well as ink jet printer comprising the ink wherein the ink is discharged from the printer onto substrate (col.1, lines 16-17, col.2, lines 30-31, col.3, line 50, col.5, lines 41-44 and 61, col.6, lines 4 and 38, and col.11, lines 38-40).

The difference between Blease et al. and the present claimed invention is the requirement in the claims of water-soluble substance comprising fluoroalkyl group.

EP 738771 disclose water-soluble substance that is the reaction product of fluoroalkyl group-containing alkoxysilane comprising fluoroalkyl group containing 1-20 carbon atoms, amine group-containing alkoxysilane comprising aminoalkyl group containing 1-18 carbon atoms, and optionally, alkyl group-containing alkoxysilane. It is disclosed that the ratio of amine group-containing alkoxysilane to fluoroalkyl group-containing alkoxysilane is 0.5:1 to 20:1 from which it is calculated that the fluoroalkyl group-containing alkoxysilane is present in amount of 5-67 mol%. The motivation for using such water-soluble substance is to produce coating which is water resistant, durable, and shelf stable (col.2, lines 17-29, col.3, lines 1-32, col.4, line 25, col.10, line 30, col.12, lines 16-19, col.14, lines 52-55, and col.15, lines 15-22).

Although there is no disclosure that the water-soluble substance undergoes condensation polymerization in the absence of water, given that EP 738771 discloses water-soluble substance comprising both fluoroalkyl group and aminoalkyl group as presently claimed and is produced by same reaction product utilized in the present invention, it is clear that the water-soluble substance would intrinsically undergo condensation polymerization in the absence of water.

In light of the motivation for using water-soluble substance disclosed by EP 738771 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such water-soluble substance in the ink of Blease et al. in order to produce ink that is water resistant, durable, and shelf stable, and thereby arrive at the claimed invention.

13. Claims 1-7, 9, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. (U.S. 6,419,732) in view of EP 738771.

Matsumura et al. disclose ink jet ink comprising water, pigment, humectant, and hydrolysable silane produced by reacting aminated organic group-bearing hydrolyzable silane with an additional hydrolyzable silane. There is also disclosed ink jet printer comprising the ink wherein the ink is discharged from the printer onto substrate (col.1, lines 3-5, col.2, lines 25-49, col.3, lines 9-25 and 43, col.4, lines 36-38, col.5, lines 58-59, col.5, line 65-col.6, line 6, and col.7, lines 63-65). Although there is no explicit disclosure of ink cartridge comprising the above ink, it would have been obvious to one of ordinary skill in the art that the ink jet printer intrinsically possesses cartridge to store ink.

The difference between Matsumura et al. and the present claimed invention is the requirement in the claims that the hydrolyzable silane comprises fluoroalkyl group.

EP 738771 discloses reaction product of amine group-containing alkoxysilane comprising aminoalkyl group containing 1-18 carbon atoms and alkyl group-containing alkoxysilane as does Matsumura et al., but additionally, EP 738771 discloses using fluoroalkyl group-containing alkoxysilane comprising fluoroalkyl group containing 1-20 carbon atoms in the reaction product in order to produce water-soluble substance comprising both fluoroalkyl group and aminoalkyl group. It is disclosed that the ratio of amine group-containing alkoxysilane to fluoroalkyl group-containing alkoxysilane is 0.5:1 to 20:1 from which it is calculated that the fluoroalkyl group-containing alkoxysilane is present in amount of 5-67 mol%. The motivation for using fluoroalkyl group-containing alkoxysilane is to control the water-solubility and the water-repellency of the produced substance (col.2, lines 19-49 and col.12, lines 16-19).

Although there is no disclosure in either Matsumura et al. or EP 738771 that the water-soluble substance undergoes condensation polymerization in the absence of water, given that the

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combination of Matsumura et al. and EP 738771 discloses water-soluble substance comprising both fluoroalkyl group and aminoalkyl group as presently claimed, it is clear that the water-soluble substance would intrinsically undergo condensation polymerization in the absence of water.

In light of the motivation for using fluoroalkyl group-containing alkoxysilane disclosed by EP 738771 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such fluoroalkyl group-containing alkoxysilane in the hydrolyzable silane in the ink of Matsumura et al. in order to produce ink that possesses good water-resistance, and thereby arrive at the claimed invention.

14. Claims 8, 11, and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al. in view of EP 738771 as applied to claims 1-7, 9, 10, and 12 above, and further in view of Blease et al. (U.S. 6,585,362).

The difference between Matsumura et al. in view of EP 738771 and the present claimed invention is the requirement in the claims of penetrant.

Blease et al., which is drawn to ink jet ink, disclose the use of penetrant in order to help the ink penetrate into the substrate (col.6, lines 37-42).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use penetrant in the ink jet ink of Matsumura et al. in order to produce ink with good penetration into substrate and thus, quicker drying and less smudging, and thereby arrive at the claimed invention.

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15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matsumura et al. (U.S. 6,306,928) disclose ink comprising dye and/or pigment and hydrolysable silane obtained by hydrolyzing mixture of reaction product of aminated organic group-containing hydrolysable silane and monoepoxy agent with specific hydrolyzable silane.

Matsumura et al. (U.S. 5,935,311) disclose ink comprising dye and/or pigment and hydrolysable silane obtained by hydrolyzing mixture of reaction product of aminated organic group-containing hydrolysable silane and specific hydrolyzable silane.

Brueck et al. (U.S. 6,630,205) disclose coating comprising reaction product of fluorosilane, aminosilane, and epoxy silane.

Miyadai et al. (U.S. 6,582,620) disclose reaction product of fluorinated alkyl-bearing alkoxysilane, amino-bearing alkoxysilane, and alkoxysilyl-bearing polyorganosiloxane.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS

6/25/05